



Quick presentation of the CESAME project

Centres for Education in Science for Africa, the Mediterranean and Europe:

A project of international science centres

for the African-Mediterranean-European region

CESAME IS A FIELD PROJECT OF AEMASE

AEMASE IS A NETWORK OF ACADEMIES:

(AFRICAN EUROPEAN MEDITERRANEAN ACADEMIES FOR SCIENCE EDUCATION)

AEMASE IS SUPPORTED BY THREE NETWORKS: IAP (INTERACADEMIES PARTNERSHIP),
ALLEA (ALL EUROPEAN ACADEMIES) AND NASAC (NETWORK OF AFRICAN SCIENCE ACADEMIES)

IN PARTNERSHIP WITH THE *LA MAIN A LA PATE* FOUNDATION IN FRANCE

AEMASE-CESAME Steering Committee

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1. Origin: the AEMASE conferences and the IAP endorsement

After the Rome AEMASE I and Dakar AEMASE II conferences in 2014 and 2015, the AEMASE steering committee prepared an AEMASE III conference to initiate and publicize the CESAME project. The concept was well received among the AEMASE academies. Late August 2017, the committee received seven proposals of CESAMEs as written below:

CESAME proposals:

Country	Institution(s)
Benin	Sème City, International City of Innovation and Knowledge
Cameroon	Cameroon Academy of Sciences
Egypt	Bibliotheca Alexandrina & Academy for Scientific Research and Technology
Italy	International Center for Theoretical Physics
Morocco	Ecole normale supérieure de Tétouan & Women for Africa
South Africa	AIMS South Africa and other educational groupings in the Western Cape
Tunisia	Centre ESPRIT for training of Trainers in Education

The project was then officially launched at the Paris AEMASE III conference on October 3-4, 2017: a supportive Statement was overwhelmingly approved by the participants. It received endorsement on December 7, 2017 from the co-chairs of IAP for Science and approval from the co-chairs of IAP for Research on February 27, 2018.

2. Objective

The objective of the project is to help the professional development of science school teachers and their educators. This is achieved by building up a network of international centers that will help local/national efforts of countries to improve the training of science teachers at the level of compulsory school (K-9). The project is open to the whole African-Mediterranean-European (AME) region.

Without any ambition of substituting to the local/national teacher training systems, the project is expected to draw the educational systems from the inside. The objective is to support and improve science education through the professional development of science school teachers and in connection with living science. This is why each CESAME is embedded in a scientific environment and preferably located in a research university, while the general framework is prepared in connection with the national science academy for the scientific aspects.

In the network, all will benefit from the experience of others, share pedagogical resources (human, material or virtual) and strategic views through a platform. There will be a CESAME in charge of coordinating the network.



3. Training sessions

Inside a CESAME, the professional development of science school teachers and science teacher educators is realized thanks to short (typically one week) training sessions. The trainees meet researchers and scientists, refresh their views about science and are initiated to best practices in science education, such as Inquiry Based Science Education (IBSE). This new pedagogy is by now well tested but needs to be spread out and adapted in more countries.

The CESAMEs organize short training sessions, with approximately twenty to thirty participants (trainers or trainees). There are two kinds of sessions:

- *Firstly, international training sessions*

In the steady-state phase, international training sessions are held several times a year. To promote an enriching diversity, the trainees are a mix audience of foreign or local educators of school teachers. Among the trainers, there are international experts and scientists, local educators of science teachers, local scientists, engineers or technicians.

The sessions should have on-line follow-up, which is especially important for foreign trainees. An emphasis is to be put on the Web site through which contents and general information are to be delivered and shared between the CESAMEs.

As the CESAME network will work in a coordinated manner, the program of all international sessions in the CESAMEs is to be jointly and coherently defined.

The committee will raise funds from various sources to complete local investments and make international sessions possible.

- *Secondly, local/national sessions*

At the local/national level, the host country will replicate once or several times the international sessions. This will benefit local/national educators of science teachers or local science teachers. Clearly national educational authorities are responsible for these sessions. They will provide accreditation to the CESAMEs and ensure that a reasonable number of local trainees and trainers, educators of science teachers and possibly teachers, scientists or others participate in the sessions. They should also grant incentive to trainees through appropriate accreditation.

International and local/national sessions are two sides of a unique CESAME project that is to be constructed on a consensual basis taking into account both international requirements and local/national educational views and strategies.



4. Funding the project: financing international and local/national sessions

At first glance one could say that international sessions should be financed by international grants, while the local/national sessions should be financed by local/national funds. However, both international sessions and local/national sessions will rely at the same time on international funds and on local funds attributed (by national educational departments or other institutions). The ratio between international and local/national funds cannot be decided in an abstract way, independently of the CESAME country and place. It can partly predict the project success, because the sustainable renewal of school science education requires investment of national money.

The Committee has a major responsibility for international fund raising. On the other hand, the local/national authorities have responsibility to search funds to cover equipment and functioning costs of their CESAME, full accommodation of their national sessions but also at least part of the international sessions, part of the international travels of their teacher trainers and trainees, etc.

5. Resource unit: *La main à la pâte*

The project requires a resource unit with strong expertise about science education and teacher training: the *La main à la pâte* foundation. On June 18-23, 2018, in Paris, it has offered free participation to a one week IBSE international seminar to six duos coming from six countries that have a CESAME project: Benin, Cameroon, Italy, Morocco, South Africa and Tunisia, either educators of science teachers or pedagogues. It has also organized the content of the present ICTP session, which is mainly conducted by two *La main à la pâte* trainers. It will also help design some future international CESAME sessions in good agreement between the local preferences and the general benefit of the network.

6. Implementation

a) Phase 1 (now) with one international session in three early CESAMEs

Phase 1 is a one year proof of concept with an international one-week session hosted in each of the three early CESAMEs: **the first one in Europe (Trieste)** as coordinating centre, and two others in Africa (Tunis and Cape Town area). The Trieste CESAME will work in cooperation with the Italian teacher training association ANISN (Associazione Nazionale Insegnanti di Scienze Naturali). Each place offers all (or a large part of) the costs for accommodation, food and management for a session of 20 to 30 people, while the *La main à la pâte* foundation acts as resource unit.

Besides the efforts of the three CESAMEs to accommodate and feed participants, the provisional funding of this phase is estimated at 110.000 euros. It relies on grants from



French institutions and international Academies or networks of Academies. Phase 1 will be an assessed by a scientific committee.

b) Phase 2 (two years) with at least three sessions per year per CESAME

This phase will widen the project audience and train a significant number of teacher educators (or teachers) over the AME region. The numbers of CESAMEs and of sessions per CESAME are increased. As an example, we have considered the case of the three early CESAMEs (Trieste, Tunisia and Cape Town), each one running three international sessions, then three local/national sessions per year with 30 participants ***In this configuration, in two years, phase 2 would permit professional development of approximately 1.000 educators of science teachers at a cost of 1.000 euros per person*** (travel costs disregarded in this estimation).

c) Phase 3 (two years) involves more CESAMEs

Subject to positive evaluation and to available funds a second two-years period takes place where Benin, Cameroon, Egypt, Morocco could join the network already made by the Italian, south African and Tunisian CESAMEs. All the seven proposed CESAMEs are functioning with at least six sessions per year in each.